T Visual Quality Discipline Report

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SR 502 CORRIDOR WIDENING

IMPROVING SAFETY • INCREASING CAPACITY • REDUCING CONGESTION

I-5 TO BATTLE GROUND

FINAL
Visual Quality Discipline Report

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This project is also referred to as "SR 502/I-5 to Battle Ground – Add Lanes".

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Errata Sheet

Visual Quality Discipline Report

November 2009	Throughout: The "Mill Creek North potential mitigation site" was selected as a mitigation site and purchased by Washington State Department of Transportation (WSDOT) in 2009, therefore the name of this site is now the "Mill Creek North mitigation site."

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Executive Summary

The purpose of this document is to summarize findings of the Draft Visual Quality Discipline Report (March 2008) for the SR 502 Corridor Widening Project.

What studies, methods and coordination were used to identify existing visual quality in the study area?

Maps from the Clark County GIS Department were reviewed to identify visual resources such as streams, hills and valleys, and stands of trees. Site visits were conducted in October 2007 and February 2008 to verify visual resources, take site photos, and get a better understanding of the existing visual quality in the study area. The Clark County Planning Department was consulted to determine if there are any required permits related to visual quality that would affect this project. Additionally, the environmental assessment for the I-5/SR 502 Interchange project, a project that joins to the western end of the SR 502 Corridor Widening Project, was also reviewed.

The Federal Highway Administration's *Visual Impact Assessment for Highway Projects* was used to determine visual quality effects. This method involves scoring views from and toward SR 502 based on vividness, intactness, and unity. Each view was scored pre- and post-project from 1 (very low visual quality) to 7 (very high visual quality).

$$\text{Visual Quality} = \frac{(\text{Vividness} + \text{Intactness} + \text{Unity})}{3}$$

How were effects to effects to visual quality determined?

Effects to visual quality were determined by overlaying the project design onto aerial photos to determine which visual resources would be affected directly by the project. These effects were considered when scoring all views from and toward SR 502. Additionally, three photo simulations were prepared using the most current design information to generally portray and describe the degree of visual change. Finally, the pre-project and post-project

Vividness: The memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern. Four components constitute vividness: landform, vegetation, water, and manmade development.

Intactness: The integrity of visual order in the natural and human-created landscape, and the extent to which the landscape is free from visual encroachment. Intactness considers the overall intactness of the view and the level of encroachment upon the view.

Unity: The degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or intercompatibility between landscape elements. Unity considers the overall unity of a view as well as the unity between manmade and natural resources.

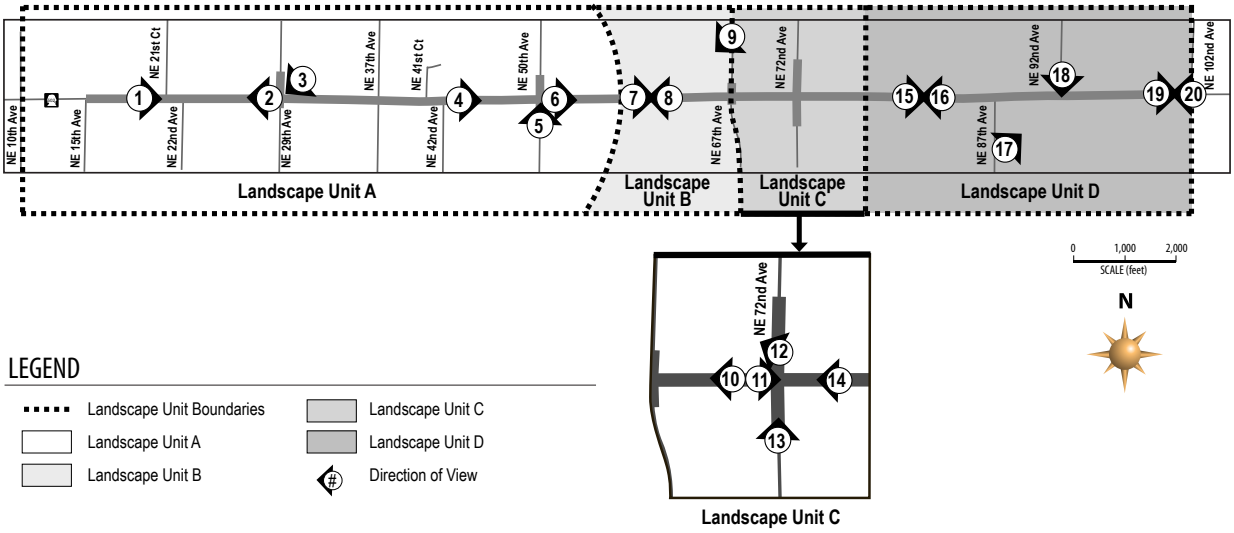
visual quality scores were compared to determine if visual quality improved, stayed the same, or decreased.

Looking west along SR 502 from NE 29th Avenue.

What is the existing visual quality in the study area?

The roadside classification in the study area is rural (WSDOT Roadside Classification Plan 1996). The study area was separated into four landscape units (Exhibit 1). A landscape unit is usually enclosed by clear boundaries which create visual outdoor rooms. Within each landscape unit, a set of representative views was analyzed to document existing visual resources and visual quality for the landscape unit as a whole.

Exhibit 1 Landscape Units and View Locations



Landscape Units A and D have moderately high (5) visual quality. The visual character of these landscape units is primarily rural residential containing forest, agricultural, residential and undeveloped land use. The existing SR 502 corridor bisects the east-west direction and forms the most visually dominant element in the landscape unit. Landscape Unit D is more of a mixture of rural residential and rural commercial uses. Visual resources blend fairly well to create mostly organized, harmonious views. (Harmonious views are those which have most or all parts agreeably related.) Visual quality is somewhat limited by congestion, the paved roadway, signs, signals, and lights. Landscape Unit B has a visual quality score of high (6). This landscape unit contains a large, grassy field on either side of SR 502 which is actually a wetland. A portion of the wetland is used for agricultural purposes.

Looking west along SR 502 near NE 67th Avenue.

Landscape Unit B has the most natural and harmonious appearance and the least visual distraction of all the landscape units. The visual quality score for Landscape Unit C (Dollars Corner) is low (2). The intersection of SR 502 and NE 72nd Avenue is characterized by visual distraction from signs, signals, lights, above ground utilities, congestion, large paved areas, and overall visual disorder. Landscape Unit C has the lowest visual quality score of the four landscape units in the study area. Viewers in the study area include motorists, residents, employees of local businesses, and bicyclists and pedestrians.

Looking east toward Dollars Corner (SR 502 and NE 72nd Avenue intersection)

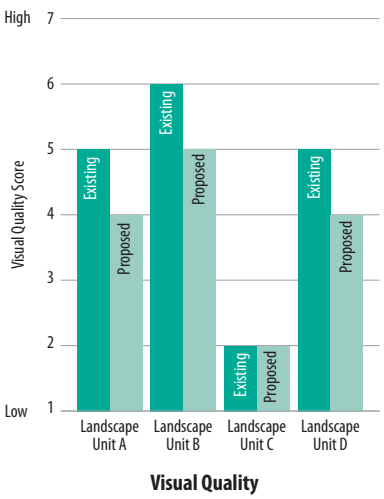
What temporary effects to visual quality would occur?

Temporary effects would be associated with the presence of construction equipment and workers, material stockpiles, debris, signage, staging areas and demolition activities. Grading and the removal of vegetation for staging areas would also create a temporary visual effect, provided that staging areas are rehabilitated after construction finishes. Light and glare emanating from construction activities would also have a temporary visual effect. All of these effects would encroach upon existing views and disrupt connectivity and unity within views. However, brightly colored signs or lights have an intended safety benefit.

What long-term effects to visual quality would occur?

In the context of the existing visual setting, the highway widening project would have moderate effects on visual resources and visual quality. Landscape Units A, B, and D would experience a slight decline in visual quality. In Landscape Unit C the negative effects and benefits would balance each other causing no change to the visual quality score (Exhibit 2). The roadside classification would be expected to remain the same (rural).

Exhibit 2 Existing and Proposed Visual Quality Scores by Landscape Unit



Landscape Unit A

The slight decrease in visual quality is partly due to vegetation removal and the increased presence of the widened roadway which makes the road (a manmade element) more visually noticeable when compared to the adjacent rural landscape. Additionally, new signs, signals, lights, and the raised median barrier would increase the visual dividing effect of the road. The widened highway would look somewhat less compatible with the adjacent rural residential landscape.

Landscape Unit B

The slight decrease in visual quality is attributed mostly to the increased presence of the widened roadway which makes the road (a manmade element) more visually noticeable when compared to the adjacent rural landscape. While vegetation would be removed, large areas of wetland vegetation would remain on either side of SR 502 and most leaf-bearing trees and pine trees would remain other than those removed for widening. No new signals would be added to this landscape unit.

Landscape Unit C

Essentially the visual effects and benefits would balance each other in this landscape unit. Therefore, the visual quality score would not change. The widened highway and intersection would be more dominant and larger in scale. Light and glare from vehicles would affect a wider area as a result of the increased highway capacity. Building removal may expose other buildings and facilities, some potentially unsightly. On the other hand, visual clutter would either be removed or consolidated, and the upgraded intersection would be more visually ordered with curbs, sidewalks, crosswalks, and designated turn lanes.

Landscape Unit D

The visual effects in Landscape Unit D would be very similar to those in Landscape Unit A. Please see the Landscape Unit A discussion above. A photo simulation shows the approximate visual change that would occur at the east end of Landscape Unit D (Exhibit 3).

Exhibit 3 Photo Simulation Showing Approximate Visual Change in Landscape Unit D

EXISTING VIEW
SR 502 Looking West from NE 102nd Avenue

PROPOSED VIEW
SR 502 Looking West from NE 102nd Avenue

What measures are proposed to minimize or avoid negative effects to visual quality?

The following measures could be taken to avoid and minimize temporary and long-term effects to visual quality. Measures include:

- To the extent practicable, shield construction lighting and/or focus it on work areas to minimize spillover of artificial light into adjacent areas.
- To the extent practicable, limit traffic stoppage and lane closures to off peak travel hours.
- To the extent practicable, contour leftover material within the project area in a way blends the material with the surrounding landscape.
- Use luminaires and sign structures that are consistent with the I-5/SR 502 interchange.
- Implement the WSDOT Roadside Classification Plan policies pertinent to permanent vegetation restoration to blend disturbed areas with the surrounding landscape, reduce negative visual effects to surrounding properties, and to restore environmental function.

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1.0 Introduction

The SR 502 Corridor Widening Project is located in north Clark County, Washington along SR 502 (NE 219th Street) between NE 15th Avenue and NE 102nd Avenue. The western terminus of the project area is NE 15th Avenue and the eastern terminus is at NE 102nd Avenue. The western terminus is approximately one mile east of Interstate 5. The project would widen an approximate five mile segment of SR 502 from two travel lanes to four travel lanes and upgrade several intersections to improve mobility and safety. Currently, SR 502 is a rural, two-lane highway. There is one signalized intersection at SR 502 and NE 72nd Avenue.

The purpose of this document is to describe the existing visual quality conditions, discuss and quantify effects and benefits the project would have on visual quality, and identify possible mitigation measures to address adverse effects as needed. The information contained in this discipline report will be used to support the project's Environmental Impact Statement (EIS).

2.0 Studies, Coordination, and Methods

The FHWA *Visual Impact Assessment for Highway Projects* establishes accepted methodology for assessing visual quality and was used as the primary reference for this assessment. This process included establishing the visual environment of the project by landscape unit, assessing visual resources within each landscape unit, identifying and photographing views toward and from the project area, describing the views and viewer groups, and analyzing the visual quality of existing and proposed views.

Views toward the study area are those that face toward SR 502. Views from the study area look along the existing and proposed alignments.

The study area was divided into four distinct landscape units to provide a framework for comparing and evaluating the visual effects. Landscape units are areas of similar physical characteristics that usually enclosed by clear boundaries which create visual outdoor rooms (FHWA 1988). Visual resources include landform (i.e., mountains, valleys, beaches), water, vegetation, and manmade development. Within each landscape unit, views that represent the visual resources within a landscape unit and their relationships to one another are documented and described.

Three visual setting terms, *foreground, middleground, and background*, are used to describe distance in relation to a viewpoint. Foreground, middleground, and background can be variable in width in continuous linear environments based on the speed at which a given area is experienced (i.e., pedestrians, high-speed travel, etc.), topography, and scale of the landscape.

For the purpose of this report, they are defined as follows:

- Foreground is the area which can be designated with clarity and simplicity not possible in the middle and background because the observer is a direct participant.

- Middleground is where parts of the landscape can be seen to join together (i.e., where trees become a forest). Middleground is also where manmade changes may be revealed as sitting comfortably on the landscape or conflicting with the landscape.

- Background is the area where distance effects are primarily explained by aerial perspective (i.e., emphasis is primarily on outlines or edges).

Observer position describes the viewer's vertical orientation to the study area: normal – on level with the study area, superior – above the study area, and inferior – below the study area.

Visual character can be determined by pattern elements such as form (visual mass, bulk, or shape), line (horizons, silhouette edges, and human-created development), color (reflected hue and lightness or darkness), and texture (apparent coarseness of visual surface). Visual character can also be determined by pattern character including dominance (where a visual component is dominant because of position, extent, or importance of pattern elements), scale (size relationships between landscape components and their surroundings), diversity (the number of pattern elements and variety among them, as well as edge relationships between them), and continuity (uninterrupted flow of pattern elements, maintenance of visual relationships between immediately connected or related landscape components or features).

Viewer groups are those who experience views on either a regular or occasional basis. They include motorists, bicyclists, pedestrians, residents, and employees of businesses. Viewer exposure and sensitivity are also important considerations when evaluating visual quality, and are particularly relevant in determining the level of impact a project might have on views and viewers. Viewer exposure refers to the physical location of each viewer group, the general size of the group, and the duration of their view. For example, there are many travelers on SR 502, but their high speeds typically prevent them from having much time to experience views. On the other hand, while there are not as many residents as there are motorists in the study area, residents are stationary (not moving) and have much more time to experience views.

Sensitivity refers directly to viewer activity and awareness; indirectly, sensitivity modifies the visual experience by means of values, opinions, and preconceptions. Activities such as commuting in heavy traffic or working on a construction site can distract an observer from many aspects of a view(s) or details in a landscape. On the other hand, activities such as driving for pleasure, relaxing in scenic surroundings, or living within any given area can encourage an observer to look at a view more closely and at greater length.

2.1 Visual Quality Assessment of Existing Views

The FHWA methodology utilizes three primary visual quality criteria – *vividness, intactness, and unity* – when evaluating views and visual impacts.

Vividness is the memorability of the visual impression received from contrasting landscape elements as they combine to form a striking and distinctive visual pattern. Four components constitute vividness: landform, vegetation, water, and manmade development.

Intactness is the integrity of visual order in the natural and human-created landscape, and the extent to which the landscape is free from visual encroachment. Intactness considers the overall intactness of the view and the level of encroachment upon the view.

Unity is the degree to which the visual resources of the landscape join together to form a coherent, harmonious visual pattern. Unity refers to the compositional harmony or

intercompatibility between landscape elements. Unity considers the overall unity of a view as well as the unity between manmade and natural resources.

For each view, all of these components are rated on a scale of 1 to 7, with 7 being the highest rating and 1 being the lowest rating. The overall visual quality for each view is the average of vividness, intactness, and unity.

$$\textbf{Visual Quality} = \frac{\textbf{(Vividness + Intactness + Unity)}}{\textbf{3}}$$

Exhibit 1 provides a translation of the numeric ratings for very high, average, or very low vividness, intactness, and unity.

2.2 Visual Quality Assessment of Proposed Views

Project impacts to visual resources are considered when evaluating the visual quality of proposed views. Twenty key views were selected to represent what a variety of viewers would see looking toward and from SR 502. Within each landscape unit, a set of representative views were selected to characterize the landscape unit, illustrate the overall visual quality, and show examples of the visual resources present. The views are used to analyze the direct effects the project would have on visual resources and overall visual quality.

Project design drawings and schematics of landform change, new roadway, bridges, facilities, vegetation addition and removal are evaluated against existing views to determine the visual quality of proposed views. The same three criteria – vividness, intactness, and unity – are rated for the proposed views, and the overall visual quality is calculated for each view.

The change in visual quality that results from the project is determined by the difference between the visual quality of the proposed view and the visual quality of the existing view:

$$\textbf{Change in Visual Quality} = \textbf{Visual Quality of Proposed View} - \textbf{Visual Quality of Existing View}$$

Based on this equation, a project that results in a positive change in visual quality or no change in visual quality is preferable to a project that results in a negative change (decrease) in visual quality.

2.3 Definition of Study Area

The study area for the project discipline reports is defined as 200 feet north and south of the centerline of the existing SR 502 roadway beginning near NE 15th Avenue and continuing east until NE 102nd Avenue. At the intersections of SR 502 and NE 29th Avenue and SR 502 and NE 50th Avenue the study area is 100 feet east and west of the centerlines of NE 29th Avenue and NE 50th Avenue and 500 feet north and south of the centerline of the existing SR 502 roadway. The study area for Dollars Corner is defined as the limits from SR 502 / NE 72nd Avenue intersection: 1,000 feet north and south; 3,000 feet east and west. In order to fully analyze potential visual change from more distant locations, some selected viewpoints have been placed outside of the pre-defined study area.

Exhibit 1. Description of Numeric Ratings for Vividness, Intactness and Unity

VIVIDNESS		
Very High (7)	Average (4)	Very Low (1)
The visual impression received is highly memorable, as contrasting landscape elements combine to form distinctive visual patterns. Strongly defined landscape or landforms are noted, including mountains, large bodies of water, distinctive patterns, colors, and textures of vegetation or significant manmade structures.	The visual impression received is moderately memorable, with some distinctive patterns; moderately defined landscape or landforms are present, including low rolling hills, and smaller water bodies. Vegetation patterns, colors, and textures are less visible. Some significant manmade structures may be present.	The visual impression received is of low memorability. Little visual pattern is formed because landscape elements do not combine to form a striking and distinctive pattern. Homogeneous landforms or landscapes and small bodies of water may be present. Vegetation patterns, colors, and textures are not noticeable and manmade structures are insignificant or not memorable.
INTACTNESS		
Very High (7)	Average (4)	Very Low (1)
There is a high visual integrity between the natural and manmade landscape to the extent that the landscape is essentially free from visual encroachment. Visual integrity occurs where natural areas and manmade landscapes blend into the surrounding character and create no visual discontinuity between the natural and manmade elements. Natural and manmade patterns are not disturbed and they maintain visual order.	There is an average visual integrity between the natural and manmade landscape. Some visual encroachment onto the landscape is present and it lacks visual order. There is some disruption of the natural and manmade patterns.	There is low visual integrity between the natural and manmade landscape features. Visual encroachment onto the landscape is very apparent. The pattern of elements is disrupted and the integrity of the natural visual order is lost.
UNITY		
Very High (7)	Average (4)	Very Low (1)
The visual elements of the landscape join together to form a highly coherent, harmonious visual pattern. Natural and manmade and elements (if present) blend together.	The visual elements of the landscape join to form a moderately coherent, harmonious visual pattern. Manmade elements blend with natural elements, but the visual order is disrupted.	Visual resources do not join together to form a coherent, harmonious visual pattern. Manmade elements do not have a visual relationship to natural landforms or land cover patterns and visual order is lacking.

2.4 Coordination and Site Visits

Coordination with the Washington State Department of Transportation (WSDOT) Southwest Region Landscape Architect occurred throughout preparation of this report and consisted of: selection of visual quality matrix for inclusion in this report, selection of views to analyze, identification of visual resources and landscape units within the study area, determination of general visual effects by landscape unit, and selection of number and locations for photo simulations (Corlett, 2007; 2008).

WSDOT's Roadside Classification Plan (1996) was consulted to determine existing roadside classification for the project (mileposts 0.83 to 5.11). Based on conversations with Clark County Planning Department staff, there are no requirements, permits or reviews required for visual quality or visual resources (Howe, 2008; Mabry, 2008).

Site visits were conducted on October 13 and October 25, 2007, and February 29, 2008. The purpose of these visits was to document existing views and visual resources.

3.0 Affected Environment

This section describes the affected environment, or existing conditions, within the study area.

The western portion of the study area is mostly flat and rural residential (mostly single-family residential). The terrain slopes moderately from west to east toward an expansive wetland area immediately west of NE 67th Avenue, and levels out near the concentrated rural commercial center of Dollars Corner (SR 502 between NE 67th Avenue and approximately NE 84th Avenue). East of Dollars Corner the study area is level and mostly mixed rural commercial with some single-family residential uses. The project extends from milepost 0.83 to milepost 5.11; the roadside classification for this segment is rural (WSDOT 1996, p. 13).

The study area's viewer groups and their exposure and sensitivity are discussed below. This is followed by a description of each landscape unit's visual resources and existing visual quality.

3.1 Viewer Groups, Viewer Exposure, and Viewer Sensitivity

The study area has four main viewer groups: residents, local employees, bicyclists and pedestrians, and motorists. Residents typically have a more frequent and longer duration views of the study area because they are stationary. They also likely place value on the condition of the surrounding landscape as seen from their homes. There are a moderate number of residential viewers in the study area.

Local employees, like residents, are also stationary viewers that may have frequent and long duration views. However, their work activities likely divert a good deal of their attention from the surrounding landscape. They may have limited sensitivity to visual change because their activities keep them focused on work rather than viewing the surrounding landscape. There are moderate numbers of employees in the study area, and most are located between NE 67th Avenue and NE 102nd Avenue.

Bicyclists and pedestrians move through the study area at a moderate or slow rate, respectively, and likely have somewhat infrequent and moderate to long duration views. They would be expected to have some degree of sensitivity to visual change. However, their activities (walking and biking on the shoulder of a high speed road) divert some of their attention from the surrounding landscape; therefore, they could be somewhat less sensitive to visual change than residents. Still, bicyclists and pedestrians could walk or bike to enjoy being outside and could be more or less focused on their surrounding environment. There are a few bicyclists and pedestrians in the study area, though. Due to the high speeds and safety concerns along the corridor, it is likely that the study area is not typically used by bicyclists or pedestrians for recreation.

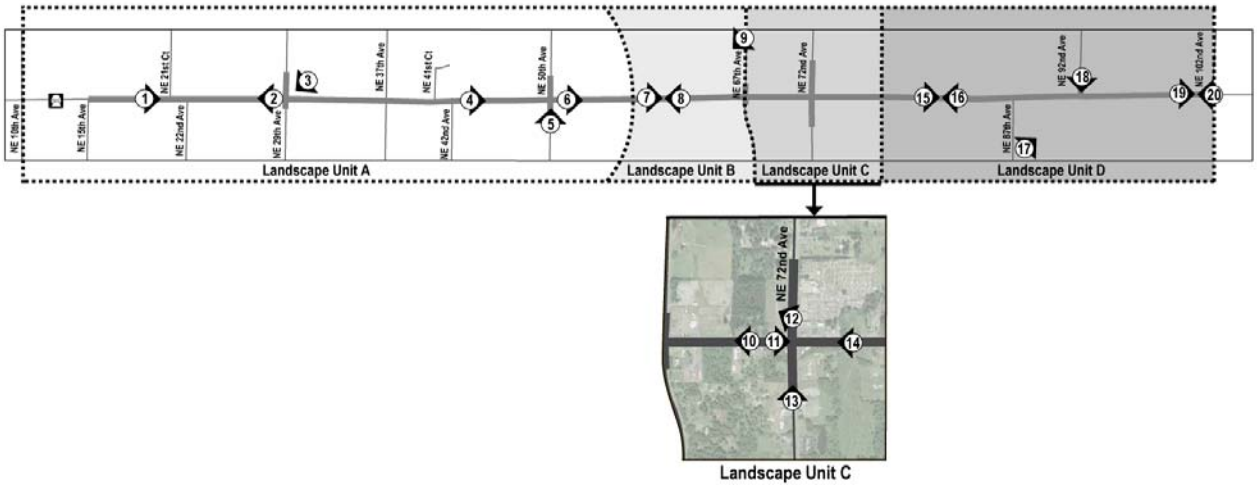
Motorists travel in or through the study area at high speeds (45 mph or greater). Those that commute through the study area daily or residents or commercial drivers traveling to/from homes or businesses have frequent views of SR 502 and the surrounding landscape. However, most of their attention is focused on driving rather than viewing the surrounding landscape. The repetitive nature of their commute likely somewhat de-sensitizes them to views of the surrounding landscape. However, they may experience the highway within the context of a larger rural landscape, and while motorists may the "desensitized" to detail within the corridor, they may also be the first to notice very small changes, such a new house in the middleground, poor

vegetation management practices along the roadside or litter. There are substantial numbers of motorists traveling in and through the study area.

3.2 Landscape Units

The study area can be characterized as being made up of four visually distinct landscape units (Exhibit 2). Slight changes in topography helped define boundaries between landscape units. Within each landscape unit, representative views were analyzed. Each view is also mapped in Exhibit 2. Photos of all views are included in Appendix A. Existing visual resources in the study area are mapped in Exhibit 3.

Exhibit 2. Landscape Units and View Locations



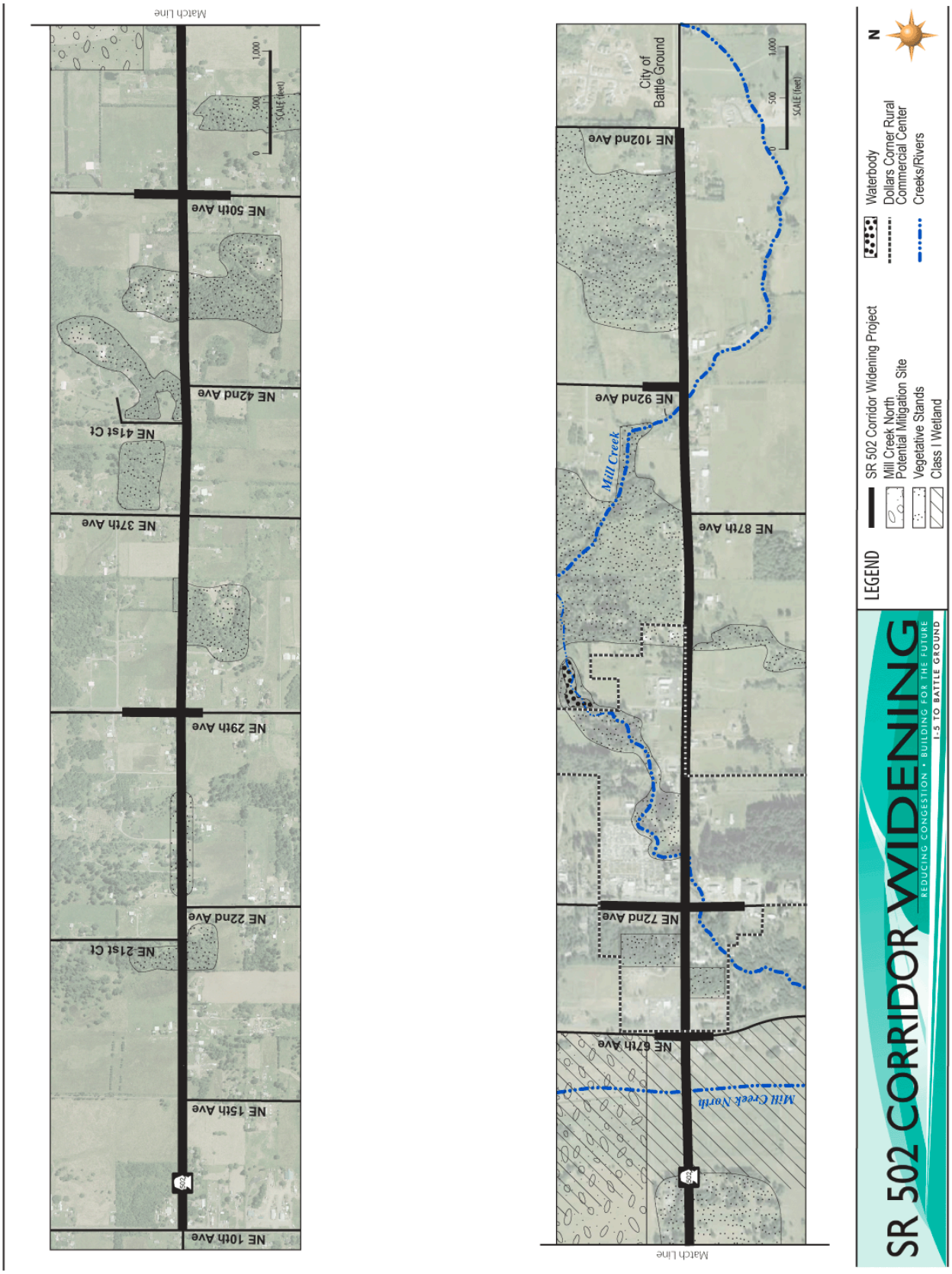
3.3 Landscape Unit A

Landscape Unit A can be visually characterized as a low-density, rural residential area, containing forest, agriculture, residential and undeveloped land uses. The existing SR 502 corridor bisects the east-west direction and forms the most visually dominant element in the landscape unit. Viewers in this landscape unit include motorists, a moderate number of residents and a few bicyclists and pedestrians. Motorists are the largest viewer group. Since this landscape unit is primarily residential, there are very few employees. Nearly all viewers are level (normal position) with the study area. Some residents may be slightly above the study area (superior position) if they are viewing the road from upper stories of their homes.

View 1: SR 502 looking east

Viewpoints in this landscape unit are mapped on Exhibit 2. Viewpoints are spread throughout the landscape unit. They record local views from the road and views toward the road from adjacent residences as well as more distant views of the Cascade Range.

Exhibit 3. Visual Resources Intersecting the Study Area



3.3.1 Existing Visual Resources

Visual resources in this landscape unit fall into four categories: landform, water, vegetation, and manmade.

The landform in the western part of this landscape unit is relatively flat, with some minor slopes and shallow swales. In some areas, large stands of mature evergreens create a visual wall on one or both sides of SR 502 preventing views beyond the immediate roadway. In between dense stands of trees, which themselves create a vertical, rounded form against the flat landscape, there are some views from SR 502 to the distant Cascade Range to the north/northeast. In the eastern part of this landscape unit, the terrain is moderately sloped, and as one travels eastward there are opportunities to view the rolling ridge line of the Cascade Range in the east. In a few stands of deciduous trees the stands have a more rounded appearance.

While there are some small water features in this landscape unit, trees mostly keep them from being visible, and the water features do not contribute substantially to the visual quality.

Vegetation is a substantial component of Landscape Unit A views. There are several dense, stands of tall, mature evergreens, as well as open fields and lawns with scattered deciduous trees. Some residents have planted trees and shrubs on the SR 502 side of their property to create a visual buffer between their homes and the road. In some areas trees on either side of the road create a narrow view along SR 502. In other areas, breaks in the vegetation allow for more expansive views across fields and lawns toward homes and distant stands of trees. Landscape Unit A is dominated year-round by a rich evergreen color.

View 2: SR 502 looking west

Single-family homes, roads and driveways, and vehicles are the dominant manmade resources in Landscape Unit A. Homes are mostly one or two-story, exhibiting average vividness (memorability). Some stand relatively close to SR 502, while others are set back. A few larger, non-descript buildings are scattered throughout Landscape Unit A such as barns and storage buildings. There is a two-story church in Landscape Unit A of moderate vividness (memorability). None of the structures in Landscape Unit A contribute appreciably to the unit's vividness. Vehicles and the road are other dominant manmade elements in this unit. Vehicles contribute to congestion which clutters views; they also are sources of unnatural light and glare. SR 502 and other roads are linear elements in views.

3.3.2 Visual Quality

The existing visual quality of Landscape Unit A is moderately high (5). Visual quality scores were calculated for the six representative views from and toward the study area in Landscape Unit A (Appendix B), and then averaged for the landscape unit score.

	Views						Landscape Unit A Average
	1	2	3	4	5	6	
Existing Visual Quality	5	5	5	6	6	5	**5 (Moderately High)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high							

This moderately high visual quality score (5) reflects fairly harmonious views from the road of a low-density, rural residential corridor in the foreground, complemented by substantial vegetation in the foreground and middleground. Vegetation contributes rich colors, textures, and shapes which increases vividness. For example, in View 1 (shown on page 6), the vividness is moderately high largely due to substantial mature vegetation and the overall unity of the view is also moderately high (see Appendix B for detailed visual quality scores). In some areas, vegetation prevents broader views to the middleground and background. In other areas, there are broader views to rural residences and fields (middleground) and mountains (background) that add visual interest. Residences emit some light and glare; light and glare from vehicles in the foreground is somewhat distracting, particularly at night. There are some visual distractions such as vehicle congestion, signs, above-ground utilities, chain link fences, parked vehicles, etc. For example, in View 2 (shown above) the utilities, fencing and traffic slightly decrease the view's intactness and the unity between the manmade and natural environment (see Appendix B for detailed visual quality scores). Other than congestion, these distractions are minimal because development is spread out. Visual resources exhibit moderately high intactness, particularly stands of trees, lawns and fields. Views appear relatively complete and whole, rather than being noticeably divided and jumbled. There is some degree of unity between the manmade and natural environment which contributes to harmonious views of the rural residential landscape.

View 6: SR 502 looking east

Views toward the road have a similar rural residential appearance, and score moderately high (5) or high (6). Most views toward the two-lane road are from residences or adjacent roads. In many cases, the road is perpendicular to the viewer in the foreground or middleground, minimizing its impact on views. Its profile is level with the surrounding landscape, so the road itself is compatible with the terrain (for example, View 6 (shown above)). In some areas, vegetation helps screen the road from view. In other areas, there are broader views toward the two-lane highway (foreground), to the rural residential landscape (middleground), and distant mountains (background) (see View 5 in Appendix B). Vehicle congestion encroaches upon views during peak hours, and there is some light and glare from vehicles and homes immediately adjacent to the road.

Natural light is dominant throughout the landscape unit, as opposed to artificial, colored lighting often associated with commercial areas. In some areas stands of tall evergreens cast shadows onto the road.

3.4 Landscape Unit B

Landscape Unit B can be visually characterized as a large, intact, slightly rolling and grassy agricultural field containing a Class I wetland. There is standing water intermittently throughout winter. It is bordered to the west by large stands of coniferous and deciduous trees. There are very few residences. The existing SR-502 corridor bisects the east-west direction and competes visually with the adjacent landscape.

Current land use is predominantly agricultural with only a few residential parcels. Motorists make up the vast majority of viewers with a small number of residents and bicyclists/pedestrians on adjacent roads. Since nearly all viewers are motorists, most viewers are level (normal position) with the study area.

Viewpoints in this landscape unit are mapped on Exhibit 2. Two viewpoints record local views along SR 502 (eastbound and westbound) and one records a view across the wetland toward SR 502 from an adjacent residence.

3.4.1 Visual Resources

Visual resources in this landscape unit fall into four categories: landform, water, vegetation, and manmade.

Landform is dominated by a shallow but distinct depression known as the Manor Trough. This is within the Mill Creek North potential mitigation site (Exhibit 3). The trough contains a large wetland that is maintained in open pasture or gently rolling fields. SR 502 is slightly elevated as it runs through the landscape unit.

During winter, the wetland ranges from soggy grassland to large areas of standing water on both sides of SR 502. The ponded areas add visual complexity to views during winter months (i.e. reflected light and colors, ripples, etc). Although there is a small creek crossing under SR 502, it does not contribute to the visual quality because it is mostly enclosed in a culvert or ditch. In summer, there are no water resources visible. There are clusters of trees on the edges of the wetland, particularly stands of oaks on the western border of the wetland.

SR 502 is the most visible manmade resource in this landscape unit. Visually, the straight highway divides the landscape unit. The prominent linear nature of the highway in an otherwise open, homogeneous landscape leads the eye quickly through the landscape unit. There are only a few houses in the landscape unit, and they are at the edge of the wetland along NE 67th Avenue.

3.4.2 Visual Quality

The existing visual quality of Landscape Unit B is high (6). Visual quality scores were calculated for the three representative views from and toward the study area in Landscape Unit B (Appendix B), and then averaged for the landscape unit score.

	Views			Landscape Unit B Average
	7	8	9	
Existing Visual Quality	6	6	6	**6 (High)**

1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high

This high visual quality score (6) reflects harmonious, intact, and vivid (memorable) views from the road of a mostly natural, uninterrupted grassy agricultural field (a Class I wetland). In View 9 (shown below), the uninterrupted field is visible bordered by stands of large, mature evergreens. The vegetation and intactness of the view contribute to its high score (see Appendix B for detailed visual quality scores.) On the western edge of the wetland, there are some mature evergreens north of SR 502 and dispersed oak trees south of SR 502. The trees add form and texture to the views. Particularly in this landscape unit, the rich greens of trees and grasses are noticeable. On both sides of SR 502, views of the agricultural landscape extend quite some distance. Visual resources exhibit intactness, particularly the gently sloping grassy fields. Views are complete and whole, rather than being noticeably divided and jumbled. There is a good degree of unity between the manmade and natural environment, particularly the rural residences on NE 67th Avenue. This contributes to harmonious views of the rural and agricultural landscape. Appendix B shows that for View 7, View 8 and View 9, the intactness and unity scores are high or very high.

View 8: SR 502 looking west

The foreground includes the two-lane highway, bordered on either side by grassy, gently rolling fields associated with the wetland. In winter, standing water is present intermittently. The middleground extends from the foreground to the middleground with clusters of mature trees particularly on the eastern edge of the wetland framing the middleground. Although there is a gentle roll to the landscape (visible in View 7, Appendix B), overall it is mostly level and stands of tall trees limit distant background views. Views toward the road are of similar character and visual quality (6 (high)) as views from the road. Most views toward SR 502 are from NE 67th Avenue, so SR 502 runs across these views, and is a minor visual distraction (for example, see View 9). Vehicles (and light and glare from those vehicles) can be seen on the highway, but the road itself does not substantially infringe upon the views of

View 9: NE 67th Avenue looking southwest toward SR 502

the open agricultural fields and wetland. There is no roadside vegetation to screen views of the road in Landscape Unit B.

Natural light, as opposed to artificial light, is predominant in this landscape unit. There is minimal light and glare from buildings, and some from vehicles on SR 502.

3.5 Landscape Unit C

Landscape Unit C can be visually characterized as a rural commercial center (known locally as Dollars Corner). SR 502 intersects NE 72nd Avenue in the center of this landscape unit. Manmade elements like the road, parking lots, buildings, signs, lights and above ground utilities are the dominant elements in the landscape unit.

Current land use is mixed but is mostly commercial (retail and service) with a few residential and vacant parcels. Motorists are the largest viewer group, followed by employees at adjacent businesses. There are some bicyclists and pedestrians and only a few residents. Nearly all viewers are level (normal position) with the study area, including employees because most commercial buildings are one-story. The few residents may be slightly above the study area (superior position) if they are viewing the road from upper stories of their homes.

Viewpoints in this landscape unit are mapped on Exhibit 2. Viewpoints record local views from SR 502 and NE 72nd Avenue toward the intersection of these roads, including adjacent commercial properties. One view captures the view from NE 72nd Avenue toward an adjacent a collectibles store that has some unique visual character. Due to the concentration of development and vegetative screening, it was impossible to capture views from residences toward the intersection of SR 502 and NE 72nd Avenue or from the road to the distant mountains.

3.5.1 Visual Resources

Visual resources in this landscape unit fall into four categories: landform, water, vegetation, and manmade.

The landform in this unit is flat. In the Dollars Corner area, Mill Creek crosses NE 72nd Avenue south of SR 502. Pedestrians and bicyclists on NE 72nd Avenue can look down from the road onto the creek channel, but motorists typically would not be able to see it while driving or riding in a car. Mill Creek also crosses SR 502 just east of NE 72nd Avenue, although it does so via a culvert.

View 11: SR 502 looking east toward NE 72nd Avenue

While Dollars Corner is somewhat developed, a few stands of tall, mature evergreens remain. A small number of deciduous trees are scattered throughout. There is very little, if any, roadside vegetation used for landscape buffering; the paved driveways of commercial parcels flow directly into the paved highway.

Manmade development consists of buildings (homes, businesses, sheds, etc), roads, culverts, signs, traffic signals, lights, and above-ground utilities. Dollars Corner can be identified as a visually defined rural commercial center, although there is no particular distinguishing theme or visual quality of the roadside developments.

3.5.2 Visual Quality

The existing visual quality of Landscape Unit C is low (2). Visual quality scores were calculated for the five representative views from and toward the study area in Landscape Unit C (Appendix B), and then averaged for the landscape unit score.

	Views					Landscape Unit C Average
	10	11	12	13	14	
Existing Visual Quality	3	2	2	2	3	**2 (Low)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high						

The low (2) visual quality scores reflects views from the road that are limited to the foreground and middleground due to the flatness of the terrain and a few stands of tall evergreens that prevent background views. Most views are visually disordered and lack vividness in vegetation, manmade features, water, and/or landform. Distracting elements like signs, traffic signals, structures, and vehicle congestion (including light and glare associated with brake lights) encroach upon views, thereby decreasing intactness and overall visual quality. For example, in View 11 (shown above) the roadway, signs, signals and congestion contribute to the low scores for intactness and unity (see Appendix B for detailed visual quality scores). For the most part, there is little unity in views; the visual resources typically do not come together to form harmonious views.

Buildings are mostly ordinary one or two-story structures that lack architectural uniqueness. Therefore, they do not contribute notably to visual quality. In fact, they may decrease visual quality as they contribute to the general disordered visual state, and most do not have visually unique features that would enhance the visual character of Dollars Corner (View 11 shown above). The one exception is a collectibles store on the northwest corner of Dollars Corner, which has some unique visual character (see View 12, Appendix B). While this building may be vivid (memorable), its visual quality is moderately low due to the lack of intactness or unity.

View 13: NE 72nd Avenue looking north toward SR 502

Signs, traffic signals, lights, and above-ground utilities tend to clutter views in Dollars Corner because they are concentrated close to one another close to the road. These visual elements contribute to the moderately low or low intactness scores of all representative views in Landscape Unit C (see detailed visual quality scores in Appendix B).

Views toward the road are similar to those described above and score low (2). Views toward the intersection of SR 502 and NE 72nd Avenue exhibit a high degree of disorder, and a low degree

of intactness or unity (View 13 shown above, for example). Vehicles turning in and out of adjacent properties distract from views, and the extent of paved surface from highway to driveway decreases any visual transition between the road and the adjacent landscape.

There is substantial artificial light and glare from vehicles, buildings, signs, traffic signals, and lights.

3.6 Landscape Unit D

Landscape Unit D can be visually characterized as a low-density, rural residential/rural commercial area, containing forest, agriculture, residential, and undeveloped areas. In comparison to Landscape Unit A, which is primarily rural residential, Landscape Unit D has more rural commercial properties, although there are residences scattered throughout. The existing SR-502 corridor bisects the east-west direction and forms the most visually dominant element in the landscape unit.

View 15: SR 502 looking east from west of NE 87th Avenue

Current land use includes agriculture, rural residential, rural commercial, forest, or vacant. Motorists are the largest viewer group. Viewers also include a moderate number of residents and a few bicyclists and pedestrians. There are only a few businesses and few employees in this landscape unit. Most viewers are level (normal position) with the study area. Some residents may be slightly above the study area (superior position) if they are viewing the road from upper stories of their homes, or if there are located on the gradual hill south of SR 502 at the east end of the landscape unit.

View 17: NE 87th Avenue looking northeast toward SR 502

Viewpoints in this landscape unit are mapped on Exhibit 2. Viewpoints are spread throughout the landscape unit. They record local views along SR 502, views across agricultural fields toward the road from adjacent residences as well as more distant views of the Cascade Range.

3.6.1 Visual Resources

Visual resources in this landscape unit fall into four categories: landform, water, vegetation, and manmade.

The landform in Landscape Unit D is fairly flat. In some areas, large stands of mature evergreens create a visual wall on one or both sides of SR 502 preventing views beyond the immediate, roadway (or highway corridor). In between stands of trees there are some views from SR 502 to

the distant Cascade Range to the north/northeast. In a few stands of deciduous trees, the stands have a more rounded appearance than the triangular evergreens.

While there are some small water features in this landscape unit, trees mostly keep them from being visible, and the water features do not contribute substantially to the visual quality.

Vegetation is a substantial component of Landscape Unit D views. There are some stands of tall, mature evergreens, as well as open fields and lawns with scattered deciduous trees. Since there is more commercial development and fewer residences, there is somewhat less roadside vegetation used as screening. In some areas trees on one or both sides of the road narrow the view corridor along SR 502. In other areas, breaks in the vegetation allow for more expansive views across fields and lawns toward homes and distant stands of trees. Landscape Unit D is dominated year-round by a rich evergreen color from agricultural pastures and trees.

Commercial structures, single-family homes, roads and driveways, and vehicles are the dominant manmade resources in Landscape Unit D. Commercial structures and houses are mostly one or two-story, and exhibit average vividness (memorability). Some stand relatively close to SR 502, while others are set back. A few larger, non-descript buildings are scattered throughout Landscape Unit D such as barns and storage buildings. There is a two-story church in Landscape Unit D of moderate vividness (memorability).

SR 502 is a dominant, linear manmade element in this unit. Above ground utilities are visible adjacent to the road, and there is a power transmission corridor perpendicular to SR 502. Vehicles contribute to congestion which clutters views; they also are sources of unnatural light and glare.

3.6.2 Visual Quality

The existing visual quality of Landscape Unit D is moderately high (5). Visual quality scores were calculated for the six representative views from and toward the study area in Landscape Unit D (Appendix B) and then averaged for the landscape unit score.

	Views						Landscape Unit D Average
	15	16	17	18	19	20	
Existing Visual Quality	4	4	7	4	5	4	**5 (Moderately High)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high							

This moderately high visual quality score (5) reflects fairly harmonious views from the road of a low-density, mixed rural commercial and rural residential corridor in the foreground, complemented by substantial vegetation in the foreground and middleground. Vegetation contributes rich colors, textures, and shapes which increases the vividness. In some areas, vegetation prevents broader views to the middleground and background. In other areas, there are broader views to rural residences and fields (middleground) and mountains (background) that add visual interest. Residences and businesses emit some light and glare; light and glare from vehicles in the foreground is somewhat distracting, particularly at night.

View 19: SR 502 looking east from west of NE 102nd Avenue

Landscape Unit D is similar in visual character and quality as Landscape Unit A; however, there are more visual detractions such as vehicle congestion, signs, above-ground utilities and chain link fences in Landscape Unit D than Landscape Unit A. This is reflected by the slightly lower visual quality scores for the representative views in Landscape Unit D than Landscape Unit A (see visual quality scores in this section and in Section 3.3.2). This is due to the more rural commercial nature of this unit and is reflected in the average (4) to moderately high (5) visual quality scores of views from the road. Most views exhibit average intactness, particularly stands of trees, lawns and fields which are somewhat bisected by driveways and parking lots associated with businesses (see Appendix B for detailed visual quality scores). In comparison to adjacent Landscape Unit C (Dollars Corner), views are more complete and consistent with low-density, mixed rural residential and rural commercial land uses. There is an average degree of unity between the manmade and natural environment (for example, Views 15, 16, 18, 19 and 20 in Appendix B) which contributes to harmonious views of the rural residential and rural commercial landscape.

Views toward the road have a similar low-density, mixed rural residential and rural commercial appearance. Most views toward the two-lane road are from businesses, residences, or adjacent roads. In many cases, the road is perpendicular to the viewer in the foreground or middleground, minimizing its impact on views. Its profile is level with the surrounding landscape, so the road itself is compatible with the terrain. In some areas, vegetation helps screen the road from view. In other areas, there are broader views toward the two-lane highway (foreground), to the rural residential and rural commercial landscape (middleground), and distant mountains (background). A hill south of SR 502 at the east end of this unit allows for broad views of the rural commercial and rural residential landscape in the middleground, and the vivid Cascade Range in the background. Vehicle congestion encroaches upon views during peak hours, and there is some light and glare from residences, homes, and vehicles immediately adjacent to the road.

Natural light is visible throughout the landscape unit, although in some areas stands of tall evergreens cast shadows onto the road.

4.0 Effects and Benefits

This section describes and documents the visual quality analysis and identifies potential effects and benefits to visual resources and visual quality scores associated with the No Build Alternative and the Build Alternative. Effects and benefits are discussed in terms of temporary effects associated with construction activities, and long-term effects and permanent changes resulting from project implementation and associated with the operation and maintenance of the facility. Indirect and cumulative effects of the project are documented in a separate report, *Indirect Effects and Cumulative Effects Discipline Report.*

4.1 Temporary Effects and Benefits

4.1.1 No Build Alternative

Under the No Build Alternative, there would be no construction within the study area for this report. Therefore, there would be no temporary effects or benefits to visual quality. Some other projects would occur in the vicinity of the SR 502 Corridor Widening project; however, the temporary (construction) visual effects of these projects are assumed to be analyzed in the environmental documents for those projects, and would not be expected to affect views or visual quality within the study area because they are some distance from this project. The one exception is the I-5/SR 502 Interchange project. A separate visual quality impact assessment was done for that project.

4.1.2 Build Alternative

Temporary effects would be associated with the presence of construction equipment and workers, material stockpiles, debris, signage, staging areas and demolition activities. Grading and the removal of vegetation for staging areas would also create a temporary visual effect, provided that staging areas are rehabilitated after construction finishes. Light and glare emanating from construction activities would also have a temporary visual effect. All of these effects would encroach upon existing views and disrupt connectivity and unity within views. However, brightly colored signs or lights have an intended safety benefit.

An example of construction signs, fencing, and median barrier used during construction of the I-5/SR 502 Interchange project.

4.2 Long Term Effects and Benefits

4.2.1 No Build Alternative

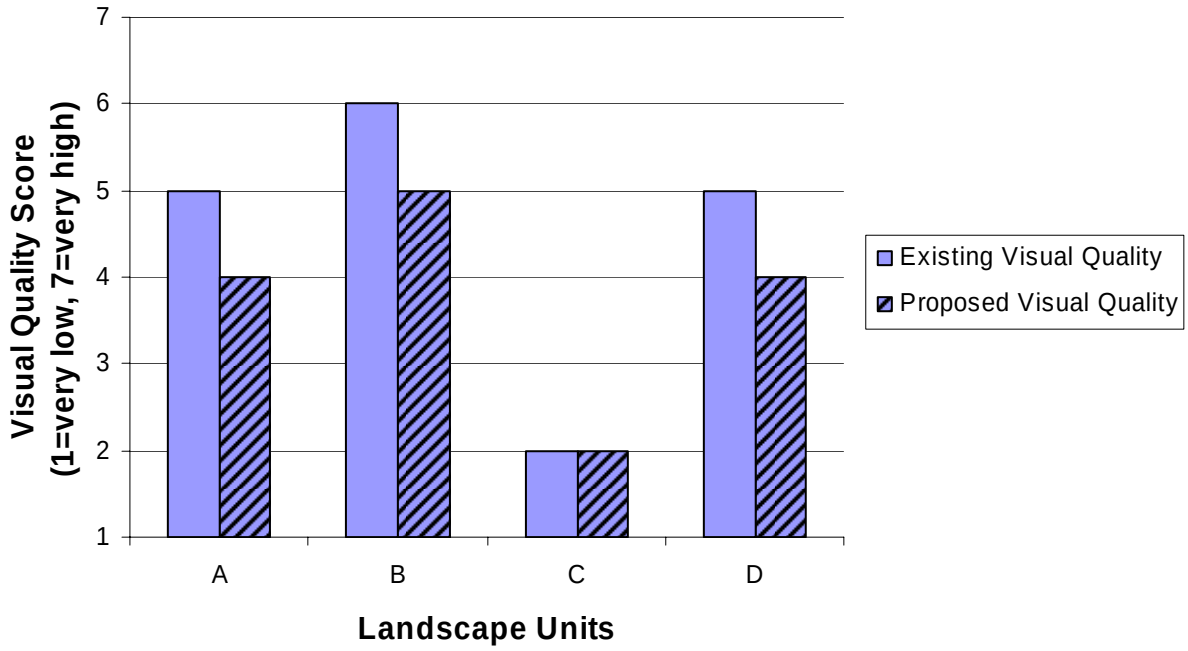
Under the No Build Alternative, the only visual effect within the study area would be growing encroachment upon views due to increasing vehicle congestion and increased light and glare coming from brake lights.

4.2.2 Build Alternative

In the context of the existing visual setting the highway widening project will have moderate effects on visual resources and visual quality. The effects are described below in detail by landscape unit. Landscape Units A, B, and D would experience a slight decline in visual quality. In Landscape Unit C the negative effects and benefits would balance each another causing no change to the visual quality score (Exhibit 4). The roadside classification would remain the same throughout the study area – rural. Although the study area intersects the City of Battle Ground limits between NE 92nd Avenue and NE 102nd Avenue on the south side of SR 502, only curb and gutter (no sidewalks) would be installed in this segment under the Build Alternative. Therefore the Build Alternative would not result in a change to the roadside classification. The

roadside character may change over time as a result of development within this area; however, the Build Alternative itself would not cause this change.

Exhibit 4. Existing and Proposed Visual Quality Scores by Landscape Unit



Landscape Unit A

As discussed previously, visual resources fall into four categories: landform, vegetation, water, and manmade. Effects to landform in Landscape Unit A would occur through cuts and fills into the terrain (width/mass of highway facility would more than double). However, the overall appearance of the terrain along and adjacent to the road would not be substantially altered. Effects to vegetation would include the removal of grass, shrubs, and trees within the project's footprint.

	Views						Landscape Unit A Average
	1	2	3	4	5	6	
Existing Visual Quality	5	5	5	6	6	5	**5 (Moderately High)**
Proposed Visual Quality	4	4	4	5	4	4	**4 (Average)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high							

Effects to vegetation would include the removal of grass, shrubs, and trees immediately adjacent to SR 502 for road widening. In View 1 shown to the left, this would result in a wider visual corridor ahead of viewers, with pavement becoming more dominant in the view.

Many of the trees are mature evergreens that would take a substantial period of time to replace. Vegetation removal would decrease the size tree stands, and the form and shape of tree stands would be altered. Wherever practicable, remaining trees would be retained, although additional trees may have to be removed if the remaining trees in a stand would be unstable.

Water is not a visible resource in Landscape Unit A. Although there are streams and creeks, they are shielded from view by riparian vegetation. The project would not permanently expose these water features to viewers because riparian areas would either be avoided or replanted. Stormwater ponds proposed in this landscape unit could add views of standing water adjacent to the roadway. Effects to manmade resources would include the increased visibility of the road (through widening), median barrier, new signs, traffic signals, and lights, and the removal of some residential structures. Moreover, vegetation removal may create views of structures that were not visible before construction.

The project's effects to visual resources described above consequently affect visual quality. The visual quality of Landscape Unit A would decrease from moderately high (5) to average (4). In views from the road, this slight decrease is attributed in part to vegetation removal which reduces vividness, and the increased presence of the widened roadway which makes the road (a manmade element) more visually dominant when compared to the adjacent rural landscape. For example, in View 1 the vividness score for vegetation would decrease from 6 (high) to 4 (average), and the score for unity between the manmade and natural environment would decrease from 5 (moderately high) to 4 (average) (see Appendix B for detailed visual quality scores). Additionally, new signs, traffic signals, lights, and the raised median barrier would encroach upon views. For example, in View 3 the expanded and signalized intersection would encroach upon the adjacent landscape. Unity would also decrease somewhat because the widened highway would be more noticeable against the context of the rural residential landscape.

Improved traffic flow and decreased congestion would be a visual benefit. With less congestion, there would be less light and glare, from brake lights especially, that would spill over onto the adjacent landscape. Congestion can also be visually distracting against a rural residential landscape, so improved mobility would benefit foreground views within Landscape Unit A. A potential benefit would be new and widened views across the foreground, extending to the middleground and background. The removal of vegetation that had previously been immediately adjacent to the roadside would broaden views from the road, and reduce shadow effects on the road.

Views toward SR 502 from adjacent properties would also experience a decrease in overall visual quality. This would be largely due to the widened roadway and newly signalized intersections encroaching more upon views (for example, Views 3 and 5). Vegetation and structure removal would open up views across the highway, and slightly decrease unity between the natural and manmade environment.

A photo simulation illustrates the approximate visual change that would occur at NE 42nd Avenue looking north toward SR 502 (Exhibit 5). In this view, the median barrier would add a raised, linear element across the view, and the widened roadway would increase the visual presence of pavement and the visually dividing effect of the road. However, the overall character of a highway through a rural residential area would not be substantially altered.

Exhibit 5. Landscape Unit A Simulation – Existing and Proposed Views

Landscape Unit B

	Views			Landscape Unit B Average
	7	8	9	
Existing Visual Quality	6	6	6	**6 (High)**
Proposed Visual Quality	5	5	6	**5 (Moderately High)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high				

Effects to landform in Landscape Unit B would include fill material added to either side of the existing road to support the widened highway. The widened highway would have a similar vertical profile to the existing conditions so landform would not experience a noticeable difference. Vegetation, particularly grasses and shrubs, would be removed on either side of SR 502. In addition, a number of deciduous and coniferous trees would be removed immediately adjacent to the road on the east and west ends of the landscape unit. Visible effects to water resources are not anticipated as a result of the culvert replacement under SR 502.

Effects to manmade resources would primarily be related to the increased visibility of pavement from the widened highway. Median barrier would amplify the visual presence of concrete within views. Some residential structures would be removed, while vegetation removal could make remaining structures more visible.

The visual quality of Landscape Unit B would decrease from high (6) to moderately high (5). This slight decrease is attributed mostly to the increased presence of the widened roadway which makes the road (a manmade element) more visually dominant in the foreground when compared to the adjacent rural landscape. This is apparent in Views 7, 8, and 9 where the unity between manmade and natural environment would decrease from high (6) to moderately high (5) (see Appendix B). While vegetation would be removed, intact areas of wetland vegetation would remain on either side of SR 502 and most deciduous and coniferous trees would remain other than those removed for highway widening. Therefore, the overall vividness scores in this unit would remain essentially unchanged (see detailed visual quality scores in Appendix B).

The increased presence of the road would decrease intactness in the foreground by amplifying the visual dividing effect and widen the visual footprint of light and glare, encroaching slightly more on views. Unity of views would decrease somewhat because SR 502 would be more visually dominant within the context of the mostly natural-appearing wetland (for example, View 8 shown below).

Views of SR 502 from adjacent properties would not substantially change. With the exception of some increased light and glare and multiple lanes of traffic moving across views, the widened highway would not be particularly noticeable because of its relatively low vertical profile and perpendicular alignment across views (for example, View 9).

A photo simulation illustrates the approximate visual change that would occur at the midpoint of Landscape Unit B looking west along SR 502 (Exhibit 6). In this view, the median barrier would add a raised, linear element across the view, and the widened roadway would increase the visual presence of pavement and the visually dividing effect of the road.

Exhibit 6. Landscape Unit B Simulation – Existing and Proposed Views

Landscape Unit B Midpoint Looking West along SR 502
EXISTING VIEW

Landscape Unit B Midpoint Looking West along SR 502
PROPOSED VIEW

Landscape Unit C

Effects to landform in Landscape Unit C would be very minimal. There would be minimal cuts into the landscape and minimal fill material added because Dollars Corner is mostly flat and will remain mostly flat under the Build Alternative. Some roadside vegetation would be removed, but since this landscape unit is already quite developed as a rural commercial center with considerable areas of impervious surface, the overall change to vegetation would be nominal. Mature trees along Mill Creek may be removed when the culverts under NE 72nd Avenue and SR 502 are replaced. Mill Creek along NE 72nd Avenue south of SR 502 would be slightly more visible after vegetation removal.

	Views					Landscape Unit C Average
	10	11	12	13	14	
Existing Visual Quality	3	2	2	2	3	**2 (Low)**
Proposed Visual Quality	2	2	3	2	2	**2 (Low)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high						

The most noticeable changes would occur to manmade resources: structures, the highway, and the intersection of SR 502/NE 72nd Avenue. Several commercial and residential structures would be removed due to right of way acquisition and the SR 502/NE 72nd Avenue intersection would be substantially widened and upgraded. None of the structures that would be removed contribute considerably to existing visual quality. The addition of travel and turn lanes would markedly expand the visual corridor through Dollars Corner, as opposed to the existing conditions where structures, signs, and parking lots stand almost immediately adjacent to the road.

Visual quality in Landscape Unit C would remain the same – low (2). Essentially, the visual effects and benefits would balance each other in this landscape unit. In views from the road, the widened highway and intersection would be more dominant and larger in scale. For example, in View 11 (Appendix A) the expanded intersection would be substantially larger under the Build Alternative. Light and glare from vehicles would affect a wider area as a result of the increased highway capacity. Structure removal may expose other structures and facilities, some potentially unsightly. On the other hand, visual clutter would either be removed or consolidated causing intactness to remain the same or improve in some cases (for example, Views 11, 12, and 13) (Appendix B). The upgraded intersection would be more visually ordered with curbs, sidewalks, crosswalks, designated turn lanes, etc. Limited access would minimize the visual distraction caused by vehicles turning in and out of adjacent properties.

Views toward the road would be broadened as the entire Dollars Corner area would be opened up as a result of the highway widening and intersection expansion. Although the multiple lanes and additional signs, traffic signals, and lights would encroach more upon views, the upgraded intersection would appear more intact and unified, albeit in a manmade way. Structures not removed would have new views of the SR 502/NE 72nd Avenue intersection and other structures that would likely not have been visible under the existing conditions.

Landscape Unit D

Effects to visual resources in Landscape Unit D would be similar to effects in Landscape Unit A.

	Views						Landscape Unit D Average
	15	16	17	18	19	20	
Existing Visual Quality	4	4	7	4	5	4	**5 (Moderately High)**
Proposed Visual Quality	4	4	6	3	4	3	**4 (Average)**
1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high							

Overall, landform would remain essentially unchanged. In some places there would be cuts into the landscape and some fill material would be added; however, given the relative flatness of this landscape unit there would be essentially no visually noticeable change in the vertical profile of the facility or overall landform. Vegetation removal would slightly decrease the size of some stands of trees, and the form and shape of tree stands would be somewhat altered. However, in most cases the road-side portion of these stands would be removed leaving the rest of the stand intact. Effects to vegetation would include the removal of grass, shrubs, and trees within the project's footprint. Mill Creek would be slightly realigned to improve habitat function, so views toward Mill Creek would change slightly with the creek curving more gently than under the existing conditions. As a result Mill Creek may become more visible from SR 502.

Effects to vegetation would include the removal of grass, shrubs, and trees immediately adjacent to SR 502 for road widening. In View 16 shown to the left, this would result in a wider visual corridor ahead of viewers, with pavement becoming more dominant in the view.

Stormwater ponds proposed in this landscape unit could add views of standing water adjacent to the roadway. Effects to manmade resources would include the increased visibility of the road (through widening), median barrier, new signs, traffic signals, and lights, and the removal of some structures. Some commercial and residential structures would be removed. Moreover, vegetation removal may create views of structures that were not visible before construction.

As in Landscape Unit A, visual quality in Landscape Unit D would decrease from moderately high (5) to average (4). This slight decrease is attributed in part to vegetation removal which reduces vividness (for example, Views 15, 16, 18, and 19) (see Appendix B), and the increased presence of the widened roadway which makes the road (a manmade element) more visually dominant when compared to the adjacent rural landscape. Additionally, new signs, traffic signals, lights, and the raised median barrier encroach upon views and increase the visual dividing effect of the road. Unity would also decrease somewhat, particularly in Views 18, 19, and 20 (Appendix A) because the widened highway would be more noticeable within the context of the rural residential landscape.

Improved traffic flow and decreased congestion would be a visual benefit. With less congestion, there would be less light and glare, from brake lights especially, that would spill over onto the adjacent landscape. Congestion can also be visually distracting against a rural residential landscape, so improved mobility would benefit foreground views within Landscape Unit D. An additional benefit would be new and widened views across the foreground, extending to the middleground and background. The removal of vegetation that was previously immediately adjacent to the roadside would broaden views from the road, and lessen shadow effects on the road (for example, Views 15, 16, 19, and 20) (Appendix B).

Views toward SR 502 from adjacent properties would also experience a decrease in visual quality. This would be largely due to the widened roadway and newly signalized intersections encroaching more upon views (for example, View 18) (Appendix B). Vegetation and structure removal would open up views across the highway, and slightly decreasing unity between the natural and manmade environment.

A photo simulation illustrates the approximate visual change that would occur at the east end of Landscape Unit D (Exhibit 7). In this view, the median barrier would add a raised, linear element across the view, and the widened roadway would increase the visual presence of pavement and the visually dividing effect of the road.

Exhibit 7. Landscape Unit D Simulation – Existing and Proposed Views

5.0 Mitigation

This section discusses potential mitigation measures that could be used to avoid or minimize effects to visual quality. Potential mitigation measures are discussed for the temporary effects and the long-term effects of the Build Alternative only.

5.1 Mitigation for Temporary Effects

The following measures could be taken to the extent practicable to avoid and minimize temporary effects to visual quality. Measures include:

- To the extent practicable, shield construction lighting and/or focus it on work areas to minimize spillover of artificial light into adjacent areas.
- To the extent practicable, limit traffic stoppage and lane closures to off peak travel hours.

5.2 Mitigation for Long Term Effects

Opportunities to minimize the Build Alternative's effects on visual quality have been considered in its design. For example, the design utilizes a minimum footprint width and vertical profile, and the proposed alignment meanders slightly throughout the study area to avoid habitat areas and vegetation, to the extent practicable.

The following measures could be taken to the extent practicable to avoid and minimize any remaining long-term effects to visual quality. Measures include:

- To the extent practicable, contour leftover material within the project area in a way that blends the material with the surrounding landscape.
- Use luminaires and sign structures that are consistent with the I-5/SR 502 interchange.
- Implement the WSDOT Roadside Classification Plan policies pertinent to permanent vegetation restoration to blend disturbed areas with the surrounding landscape, reduce negative visual impacts to surrounding properties, and to restore environmental function.

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Appendix A

Landscape Unit Views

Landscape Unit A Views

View 1: SR 502 looking east near NE 21st Court

View 2: SR 502 looking west from NE 29th Avenue

View 3: Looking southwest toward SR 502/ NE 29th Avenue intersection

View 4: SR 502 looking east near NE 42nd Avenue

View 5: Looking north toward SR 502/NE 50th Avenue intersection

View 6: SR 502 looking east from NE 50th Avenue

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Landscape Unit B Views

View 7: SR 502 looking east from east of NE 50th Avenue

View 8: SR 502 looking west from west of NE 67th Avenue)

View 9: NE 67th Avenue looking southwest toward SR 502

Landscape Unit C Views

View 10: SR 502 looking west from west of NE 72nd Avenue

View 11: SR 502 looking east toward NE 72nd Avenue

View 12: NE 72nd Avenue (north of SR 502) looking west

View 13: NE 72nd Avenue (south of SR 502) looking north

View 14: SR 502 looking west toward NE 72nd Avenue

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Landscape Unit D Views

View 15: SR 502 looking east from west of NE 87th Avenue

View 16: SR 502 looking west from west of NE 87th Avenue

View 17: NE 87th Avenue looking northeast toward SR 502

View 18: NE 92nd Avenue looking south toward SR 502

View 19: SR 502 looking east from west of NE 102nd Avenue

View 20: SR 502 looking west from NE 102nd Avenue

Appendix B

Visual Quality Matrix: Visual Quality Scores by Landscape Unit

Landscape Unit	View	E = Existing View, P = Proposed View	F = View from the road T = View toward the road	*Position*: Vertical Location of Viewer to Project[1]	*Setting*: Horizontal Location of Project to Viewer[2]	VIVIDNESS					INTACTNESS			UNITY			
						Landform	Water	Vegetation	Manmade	Average	Integrity of visual pattern	Encroachments	Average	Between man-made & natural environment	Overall	Average	Visual Quality Score for View
A	1	E	F	N	F,M	4	n/a	6	4	5	5	5	5	5	5	5	5
		P	F	N	F,M	4	n/a	4	4	4	5	4	5	4	4	4	4
	2	E	F	N	F,M	3	n/a	4	4	4	5	5	5	5	5	5	5
		P	F	N	F,M	3	n/a	3	4	3	4	4	4	3	4	4	4
	3	E	T	N	M	3	n/a	5	4	4	4	5	5	4	5	5	5
		P	T	N	M	3	n/a	4	4	4	4	3	4	3	4	4	4
	4	E	F	N	F,M	6	n/a	6	4	5	6	6	6	5	6	6	6
		P	F	N	F,M	6	n/a	4	4	5	5	4	5	4	5	5	5
	5	E	T	N	F	6	n/a	6	4	5	6	5	6	6	6	6	6
		P	T	N	F	6	n/a	4	4	5	4	4	4	4	4	4	4
	6	E	F	N	F,M	6	n/a	5	5	5	5	5	5	5	5	5	5
		P	F	N	F,M	6	n/a	4	4	5	4	4	4	4	4	4	4
Existing Visual Quality for Landscape Unit						5											
Proposed Visual Quality for Landscape Unit						4											

Note: N/A under "Vividness - Water" indicates that there is no water in the view to evaluate.

[1] N = Normal (on level with study area), I = Inferior (below study area), S = Superior (above study area). [2] F = Foreground, M = Middleground, B = Background.

1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high

Landscape Unit	View	E = Existing View, P = Proposed View	F = View from the road T = View toward the road	*Position*: Vertical Location of Viewer to Project[1]	*Setting*: Horizontal Location of Project to Viewer[2]	VIVIDNESS					INTACTNESS			UNITY			Visual Quality Score for View	Existing Visual Quality for Landscape Unit	Proposed Visual Quality for Landscape Unit
						Landform	Water	Vegetation	Manmade	Average	Integrity of visual pattern	Encroachments	Average	Between man-made & natural environment	Overall	Average			
B	7	E	F	N	F,M	5	n/a	6	4	5	6	6	6	6	6	6	6	6	5
		P	F	N	F,M	5	n/a	5	4	5	5	5	5	5	5	5	5		
	8	E	F	N	F,M	5	n/a	6	5	5	6	6	6	6	7	7	6	6	
		P	F	N	F,M	5	n/a	5	5	5	5	5	5	5	5	5	5		
	9	E	T	N	M	5	n/a	6	5	5	6	6	6	6	6	6	6	6	
		P	T	N	M	5	n/a	5	5	5	5	5	5	5	6	6	6		

Note: N/A under "Vividness - Water" indicates that there is no water in the view to evaluate.

[1] N = Normal (on level with project), I = Inferior (below project), S = Superior (above project). [2] F = Foreground, M = Middleground, B = Background.

1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high

Landscape Unit	View	E = Existing View, P = Proposed View	F = View from the road T = View toward the road	*Position*: Vertical Location of Viewer to Project[1]	*Setting*: Horizontal Location of Project to Viewer[2]	VIVIDNESS					INTACTNESS		UNITY			Visual Quality Score For View	Existing Visual Quality for Landscape Unit	Proposed Visual Quality for Landscape Unit
						Landform	Water	Vegetation	Manmade	Average	Integrity of visual pattern	Encroachments	Average	Between man-made & natural environment	Overall	Average		
C	10	E	F	N	F,M	4	n/a	4	3	4	3	3	3	3	3	3	2	2
		P	F	N	F,M	4	n/a	3	3	3	2	2	2	2	2	2		
	11	E	F	N	F,M	3	n/a	4	3	3	2	2	2	2	2	2		
		P	F	N	F,M	3	n/a	3	2	3	2	2	2	1	2	2		
	12	E	T	N	F	2	n/a	2	4	3	1	2	2	2	2	2		
		P	T	N	F	2	n/a	2	4	3	2	3	3	2	3	3		
	13	E	T	N	F,M	2	n/a	3	3	3	2	2	2	2	2	2		
		P	T	N	F,M	2	n/a	2	3	2	2	1	2	1	2	2		
	14	E	F	N	F,M	3	n/a	4	4	4	3	3	3	3	3	3		
		P	F	N	F,M	3	n/a	3	4	3	2	2	2	2	2	2		

Note: N/A under "Vividness - Water" indicates that there is no water in the view to evaluate.

[1] N = Normal (on level with project), I = Inferior (below project), S = Superior (above project). [2] F = Foreground, M = Middleground, B = Background.

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Landscape Unit	View	E = Existing View, P = Proposed View	F = View from the road T = View toward the road	*Position*: Vertical Location of Viewer to Project[1]	*Setting*: Horizontal Location of Project to Viewer[2]	VIVIDNESS						INTACTNESS			UNITY				
						Landform	Water	Vegetation	Manmade	Average	Integrity of visual pattern	Encroachments	Average	Between man-made & natural environment	Overall	Average	Visual Quality Score For View	Existing Visual Quality for Landscape Unit	Proposed Visual Quality for Landscape Unit
D	15	E	F	N	F,M	4	n/a	4	5	4	4	4	4	4	4	4	4	5	4
		P	F	N	F,M	4	n/a	3	4	4	4	3	4	3	4	4	4		
	16	E	F	N	F,M	4	n/a	5	4	4	4	4	4	4	4	4	4		
		P	F	N	F,M	4	n/a	4	4	4	4	4	4	4	4	4	4		
	17	E	T	S	M	7	n/a	5	6	6	7	6	7	6	7	7	7		
		P	T	S	M	7	n/a	5	6	6	6	6	6	6	7	7	6		
	18	E	T	N	F	5	n/a	4	4	4	4	4	4	4	4	4	4		
		P	T	N	F	5	n/a	3	4	4	3	3	3	3	3	3	3		
	19	E	F	N	F,M	5	n/a	5	5	5	5	4	5	4	5	5	5		
		P	F	N	F,M	5	n/a	4	4	4	4	3	4	3	4	4	4		
	20	E	F	N	F,M	3	n/a	4	3	3	3	5	4	4	4	4	4		
		P	F	N	F,M	3	n/a	4	3	3	3	4	4	3	3	3	3		

Note: N/A under "Vividness - Water" indicates that there is no water in the view to evaluate.

[1] N = Normal (on level with project), I = Inferior (below project), S = Superior (above project). [2] F = Foreground, M = Middleground, B = Background.

1 = very low, 2 = low, 3 = moderately low, 4 = average, 5 = moderately high, 6 = high, 7 = very high